

**REMARKS**

**Status Of Application**

Claims 1-20 were pending in the application.

Claims 4 and 19 are rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement.

Claims 1, 2, 5-17, and 20 are rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,175,671 B1, as cited in the last Office Action, to Roberts (“Roberts”).

Claims 1-3 and 16-18 are rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 4,850,682 to Gerritsen (“Gerritsen”).

New claims 21-30 have been added.

Claims 1, 4, 6, 9, 11 and 16 have been amended to correct minor errors and to more particularly point out and distinctly specify the claimed invention.

The indication, in the Office Action, that the Examiner has no objections to the drawings filed on January 18, 2001, is noted with appreciation.

**35 U.S.C. § 112 Rejection**

The rejection of claims 4 and 19 under the first paragraph of 35 U.S.C. § 112 as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention, is respectfully traversed based on the following.

Claim 4 has been amended to change "elastic" to "acoustic" to more closely track the written description. Claims 4 and 19 are fully supported by the embodiment of Figure 7 as explained at page 12, lines 2-16 of the written description.

Accordingly, it is respectfully requested that the rejection of claims 4 and 19 under the first paragraph of 35 U.S.C. § 112 as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention, be reconsidered and withdrawn.

**35 U.S.C. § 102(e) and (b) Rejections**

The rejection of claims 1, 2, 5-17, and 20 under 35 U.S.C. § 102(e) as being anticipated by Roberts, is respectfully traversed based on the following.

Roberts shows waveguides 11, 12 and 13, formed in dielectric slab 2 (Figures 1 and 2). A lattice region 3 includes a plurality of lattice sites 4 formed in slab 2 except where waveguides 11, 12 and 13 are located. Light passing into the slab will propagate through the waveguides, but is blocked by lattice region (column 5, lines 8-13). In one embodiment (Figures 7 and 10), controllable lattice sites 22 are formed within a waveguide. These controllable lattice sites are used to selectively turn "on" or "off" a portion of the waveguide (column 6, lines 6-16).

In contrast to the cited prior art, claim 1 comprises an optical functional device including,

wherein each recurrence of the second refractive index portion has a variable refractive index, and wherein, when the second refractive index portions are in a first refractive state, the optical functional device passes light having a first characteristic, and, when the second refractive index portions are in a second refractive state, the optical functional device passes light without redirection having the first characteristic and redirects light having a second characteristic.

In the Roberts reference, the controllable lattice sites are only shown to be capable of selectively blocking the passage of light through the waveguide. There is no showing or suggestion of a device capable of, when the second refractive index portions are in a

first refractive state, selectively passing light having a first characteristic and, when the second refractive index portions are in a second refractive state, and passing the light having the first characteristic and redirecting light having a second characteristic. To anticipate, a reference must show, expressly or inherently, every limitation of the claim. MPEP §2131. Therefore, the cited reference does not anticipate claim 1. Claims 2 and 5 are dependent upon claim 1 and thus include every limitation of claim 1. Therefore, claims 2 and 5 are also not anticipated by the cited reference.

Also in contrast to the cited prior art, claim 6 comprises an optical integrated device including:

wherein each recurrence of the second refractive index portion has a variable refractive index, and wherein, when the second refractive index portions are in a first refractive state, the optical functional device passes light having a first characteristic, and, when the second refractive index portions are in a second refractive state, the optical functional device passes light without redirection having the first characteristic and redirects light having a second characteristic.

As noted above with regard to claim 1, the cited reference does not show or suggest a device capable of, when the second refractive index portions are in a first refractive state, selectively passing light having a first characteristic and, when the second refractive index portions are in a second refractive state, and passing the light having the first characteristic and redirecting light having a second characteristic. Therefore, claim 6 is not anticipated by the cited reference. Claims 7 and 8 are dependent upon claim 6 and thus include every limitation of claim 6. Therefore, claims 7 and 8 are also not anticipated by the cited reference.

Also in contrast to the cited prior art, claim 9 comprises an optical integrated device including:

wherein each recurrence of the second refractive index portion has a variable refractive index, and wherein, when the second refractive index portions are in a first refractive state, the optical functional device passes

light having a first characteristic, and, when the second refractive index portions are in a second refractive state, the optical functional device passes light without redirection having the first characteristic and redirects light having a second characteristic ...

As noted above with regard to claim 1, the cited reference does not show or suggest a device capable of, when the second refractive index portions are in a first refractive state, selectively passing light having a first characteristic and, when the second refractive index portions are in a second refractive state, and passing the light having the first characteristic and redirecting light having a second characteristic. Therefore, claim 9 is not anticipated by the cited reference. Claim 10 is dependent upon claim 9 and thus include every limitation of claim 9. Therefore, claim 10 is also not anticipated by the cited reference.

Also in contrast to the cited prior art, claim 11 comprises an optical integrated device including:

wherein each recurrence of the second refractive index portion has a variable refractive index, and wherein, when the second refractive index portions are in a first refractive state, the optical functional device passes light having a first characteristic, and, when the second refractive index portions are in a second refractive state, the optical functional device passes light without redirection having the first characteristic and redirects light having a second characteristic.

As noted above with regard to claim 1, the cited reference does not show or suggest a device capable of, when the second refractive index portions are in a first refractive state, selectively passing light having a first characteristic and, when the second refractive index portions are in a second refractive state, and passing the light having the first characteristic and redirecting light having a second characteristic. Therefore, claim 11 is not anticipated by the cited reference. Claims 12-15 are dependent upon claim 11 and thus include every limitation of claim 11. Therefore, claims 12-15 are also not anticipated by the cited reference.

Also in contrast to the cited prior art, claim 16 comprises an optical functional device including:

a controller for varying the refractive index of the plurality of second refractive index portions, and wherein, when the second refractive index portions are in a first refractive state, the optical functional device passes light having a first characteristic, and, when the second refractive index portions are in a second refractive state, the optical functional device passes light without redirection having the first characteristic and redirects light having a second characteristic.

As noted above with regard to claim 1, the cited reference does not show or suggest a device capable of, when the second refractive index portions are in a first refractive state, selectively passing light having a first characteristic and, when the second refractive index portions are in a second refractive state, and passing the light having the first characteristic and redirecting light having a second characteristic. Therefore, claim 16 is not anticipated by the cited reference. Claims 17 and 20 are dependent upon claim 16 and thus include every limitation of claim 16. Therefore, claims 17 and 20 are also not anticipated by the cited reference.

Accordingly, it is respectfully requested that the rejection of claims 1, 2, 5-17 and 20 under 35 U.S.C. § 102(e) as being anticipated by Roberts, be reconsidered and withdrawn.

The rejection of claims 1-3 and 16-18 under 35 U.S.C. § 102(b) as being anticipated by Gerritsen, is respectfully traversed based on the following.

Gerritsen shows a device having a first element 11 having a diffraction grating surface 12 formed thereon. A second element 14 having smooth surfaces is spaced from the diffraction grating surface. A nematic liquid crystal material 19 is held between the first and second elements. When no field is applied to the liquid crystal material, the liquid crystal material has the same refractive index as element 11. Thus, light passing through the diffraction grating will not be refracted and the diffraction grating will have no

effect. When a field is applied to the liquid crystal, the liquid crystal has a different refractive index than that of element 11 and light will be redirected by the diffraction grating (column 4, line 66 – column 5, line 7).

In contrast to the cited prior art, claim 1 comprises an optical functional device including,

wherein each recurrence of the second refractive index portion has a variable refractive index, and wherein, when the second refractive index portions are in a first refractive state, the optical functional device passes light having a first characteristic, and, when the second refractive index portions are in a second refractive state, the optical functional device passes light without redirection having the first characteristic and redirects light having a second characteristic.

The Gerritsen reference does not show or suggest selectivity to the type of light. All light passes through unimpeded or all light is redirected, depending on the field applied to the liquid crystal material. There is no showing or suggestion of a device capable of passing the light having a first characteristic and redirecting light having a second characteristic. To anticipate, a reference must show, expressly or inherently, every limitation of the claim. MPEP §2131. Therefore, the cited reference does not anticipate claim 1. Claims 2 and 3 are dependent upon claim 1 and thus include every limitation of claim 1. Therefore, claims 2 and 3 are also not anticipated by the cited reference.

Also in contrast to the cited prior art, claim 16 comprises an optical functional device including:

a controller for varying the refractive index of the plurality of second refractive index portions, and wherein, when the second refractive index portions are in a first refractive state, the optical functional device passes light having a first characteristic, and, when the second refractive index portions are in a second refractive state, the optical functional device passes light without redirection having the first characteristic and redirects light having a second characteristic.

As noted above with regard to claim 1, the cited reference does not show or suggest a device capable of passing the light having a first characteristic and redirecting light having a second characteristic. Therefore, claim 16 is not anticipated by the cited reference. Claims 17 and 18 are dependent upon claim 16 and thus include every limitation of claim 16. Therefore, claims 17 and 18 are also not anticipated by the cited reference.

Accordingly, it is respectfully requested that the rejection of claims 1-3 and 16-18 under 35 U.S.C. § 102(b) as being anticipated by Gerritsen, be reconsidered and withdrawn.

New claims 21-30 have been added. Claims 21 and 22 are dependent upon claim 1 and thus include every limitation of claim 1. Therefore, claims 21 and 22 are patentably distinct from the cited references. Claims 23 and 24 are dependent upon claim 6 and thus include every limitation of claim 6. Therefore, claims 23 and 24 are patentably distinct from the cited references. Claims 25 and 26 are dependent upon claim 9 and thus include every limitation of claim 9. Therefore, claims 25 and 26 are patentably distinct from the cited references. Claims 27 and 28 are dependent upon claim 11 and thus include every limitation of claim 11. Therefore, claims 27 and 28 are patentably distinct from the cited references. Claims 29 and 30 are dependent upon claim 16 and thus include every limitation of claim 16. Therefore, claims 29 and 30 are patentably distinct from the cited references.

### CONCLUSION

Wherefore, in view of the foregoing amendments and remarks, this application is considered to be in condition for allowance, and an early reconsideration and a Notice of Allowance are earnestly solicited.

This Amendment does not increase the number of independent claims, but increases the total number of claims by 10 from 20 to 30, but does not present any

Application No.: 09/765,229  
Amendment dated September 15, 2003  
Reply to Office Action of June 20, 2003

multiple dependency claims. Accordingly, a Response Transmittal and Fee Authorization form authorizing the amount of \$180.00 to be charged to Sidley Austin Brown & Wood LLP's Deposit Account No. 18-1260 is enclosed herewith in duplicate. However, if the Response Transmittal and Fee Authorization form is missing, insufficient, or otherwise inadequate, or if a fee, other than the issue fee, is required during the pendency of this application, please charge such fee to Sidley Austin Brown & Wood LLP's Deposit Account No. 18-1260.

Any fee required by this document other than the issue fee, and not submitted herewith should be charged to Sidley Austin Brown & Wood LLP's Deposit Account No. 18-1260. Any refund should be credited to the same account.

If an extension of time is required to enable this document to be timely filed and there is no separate Petition for Extension of Time filed herewith, this document is to be construed as also constituting a Petition for Extension of Time Under 37 C.F.R. § 1.136(a) for a period of time sufficient to enable this document to be timely filed.

Any other fee required for such Petition for Extension of Time and any other fee required by this document pursuant to 37 C.F.R. §§ 1.16 and 1.17, other than the issue fee,

Application No.: 09/765,229  
Amendment dated September 15, 2003  
Reply to Office Action of June 20, 2003

and not submitted herewith should be charged to Sidley Austin Brown & Wood LLP's Deposit Account No. 18-1260. Any refund should be credited to the same account.

Respectfully submitted,

By:   
Douglas A. Sorensen  
Registration No. 31,570  
Attorney for Applicants

DAS/lb:bar  
SIDLEY AUSTIN BROWN & WOOD LLP  
717 N. Harwood, Suite 3400  
Dallas, Texas 75201  
Direct: (214) 981-3482  
Main: (214) 981-3300  
Facsimile: (214) 981-3400  
September 15, 2003

DA1 268090v4